AMENDMENTS TO THE CLAIMS

Please amend claims 16-18, 20, 23, 26, 28-30, and 34, and add claims 36-38, such that the status of the claims is as follows. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-15. (Canceled)

16. (Currently amended) A method for transmitting data as Ethernet messages, in compliance with an Ethernet transmission protocol, on an Ethernet network having a baud rate, said method comprising the steps of:

converting the data, during transmission, into a plurality of Ethernet messages;

imposing a break time between transmission of each of the plurality of Ethernet messages;

adjusting at least one transmission parameter to ensure that, at the baud rate and with the imposed break time, Ethernet messages are transmitted continuously during an entire cycle time of a cycle; and

transmitting ~~each of~~ said plurality of Ethernet messages sequentially, cyclically, and continuously during [[a]] one or more cycles ~~having a cycle time~~.

17. (Currently amended) The method according to claim 16, ~~further comprising the steps of~~ wherein the adjusting step comprises:

determining a size of each of said plurality of Ethernet messages;

adjusting the cycle time responsive to the size of each of said plurality of Ethernet messages; and

limiting the cycle time to a maximum permissible duration.

18. (Currently amended) The method according to claim 16, ~~further comprising the steps of~~ wherein the adjusting step comprises:

determining a size of each of said plurality of Ethernet messages;

adjusting the size of each of said plurality of Ethernet messages responsive to the cycle time; and

limiting the size of each of said plurality of Ethernet messages to ensure continuous and complete transmission of each of said plurality of Ethernet messages during the cycle.

19. (Previously presented) The method according to claim 18, wherein the step of adjusting the size of each of said plurality of Ethernet messages is further responsive to the baud rate of the Ethernet network, and wherein each of said plurality of Ethernet messages includes a start identifier, a preamble, a checksum, and a break time between transmissions.

20. (Currently amended) The method according to claim 16, ~~further comprising the steps of~~ wherein the adjusting step comprises:

determining a number of said plurality of Ethernet messages;

adjusting the number of said plurality of Ethernet messages responsive to the cycle time; and

limiting the number of said plurality of Ethernet messages to ensure continuous and complete transmission of said plurality of Ethernet messages during the cycle.

21. (Previously presented) The method according to claim 20, wherein the step of adjusting the number of said plurality of Ethernet messages is further responsive to the baud rate of the Ethernet network, and wherein each of said plurality of Ethernet messages includes a start identifier, a preamble, a checksum, and a break time between transmissions.

22. (Previously presented) The method according to claim 16, further comprising the step of calculating a maximum size of each of said plurality of Ethernet messages as an arithmetic difference between:

a product of the baud rate of the Ethernet network and the cycle time; and

an arithmetic total of a length of a start identifier, a length of a preamble, a length of a checksum, and a break time between transmissions.

23. (Currently amended) The method according to claim 16, ~~further comprising the steps of~~ wherein the adjusting step comprises:

aggregating said plurality of Ethernet messages into a transmission packet;

calculating a size of the transmission packet as an arithmetic total of a size of each of said plurality of Ethernet messages comprising the transmission packet; and

limiting the size of the transmission packet to a maximum permissible size.

24. (Previously presented) The method according to claim 16, further comprising the steps of:

aggregating said plurality of Ethernet messages into a transmission packet;

storing the transmission packet in a buffer; and

transmitting one or more transmission packets from the buffer after the buffer fills to a proscribed level.

25. (Previously presented) The method according to claim 16, further comprising the steps of:

assembling data into said plurality of Ethernet messages; and

synchronistically transmitting said plurality of Ethernet messages.

26. (Currently amended) A node for an Ethernet network, the node compliant with an Ethernet transmission protocol and comprising a control unit including:

means for converting data into a plurality of Ethernet messages;

means for adjusting at least one transmission parameter to ensure that Ethernet messages are transmitted continuously during an entire cycle time of a cycle; and

means for transmitting said plurality of Ethernet messages sequentially, cyclically and continuously during [[a]] one or more cycles ~~having a cycle time and~~ with a prescribed break time between transmissions.

27. (Previously presented) The node according to claim 26, wherein said means for transmitting said plurality of Ethernet messages comprises a transmission unit and the node further comprises means for controlling said transmission unit.

28. (Currently amended) The node according to claim 26, ~~further comprising~~ wherein the means for adjusting comprises:

means for determining a size of each of said plurality of Ethernet messages;

means for adjusting the cycle time responsive to the size of each of said plurality of Ethernet messages; and

means for limiting the cycle time to a maximum permissible duration.

29. (Currently amended) The node according to claim 26, ~~further comprising~~ wherein the means for adjusting comprises:

means for determining a size of each of said plurality of Ethernet messages;

means for adjusting the size of each of said plurality of Ethernet messages responsive to the cycle time; and

means for limiting the size of each of said plurality of Ethernet messages to ensure continuous and complete transmission of said plurality of Ethernet messages during the cycle.

30. (Currently amended) The node according to claim 26 f~~, further comprising~~ wherein the means for adjusting comprises:

means for determining a number of said plurality of Ethernet messages;

means for adjusting the number of said plurality of Ethernet messages; and

means for limiting the number of said plurality of Ethernet messages responsive to a prescribed cycle time.

31. (Previously presented) The node according to claim 26 further comprising means for determining a maximum permissible size of each of said plurality of Ethernet messages.

32. (Previously presented) The node according to claim 26 further comprising:

means for aggregating said plurality of Ethernet messages into a transmission packet;

means for storing said transmission packet; and

means for transmitting one or more transmission packets.

33. (Previously presented) The node according to claim 26 further comprising:

means for assembling data into said plurality of Ethernet messages; and

means for synchronistically transmitting said plurality of Ethernet messages.

34. (Currently amended) An Ethernet network comprising:

an Ethernet transmission link;

a plurality of nodes connected to said Ethernet transmission link, each of said plurality of nodes having a control unit including:

means for converting data into a plurality of Ethernet messages;

means for adjusting at least one transmission parameter to ensure that Ethernet messages are transmitted continuously during an entire cycle time of a cycle; and

means for transmitting said plurality of Ethernet messages sequentially, cyclically and continuously during [[a]] one or more cycles ~~having a cycle time and~~ with a prescribed break time between transmissions; and

a transmission channel for transmitting the plurality of Ethernet messages without collision.

35. (Previously presented) The Ethernet network of claim 34, wherein said Ethernet transmission link comprises a ring-shaped topological arrangement and wherein said plurality of Ethernet messages are transmitted from one node to a next node.

36. (New) A method for transmitting data as Ethernet messages, in compliance with an Ethernet transmission protocol, on an Ethernet network having a baud rate, said method comprising the steps of:

converting the data, during transmission, into a plurality of Ethernet messages;

imposing a break time between transmission of each of the plurality of Ethernet messages;

calculating a maximum size of each of said plurality of Ethernet messages as an arithmetic difference between (a) a product of the baud rate of the Ethernet network and the cycle time and (b) an arithmetic total of a length of a start identifier, a length of a preamble, a length of a checksum, and the break time between transmissions; and

transmitting each of said plurality of Ethernet messages sequentially, cyclically, and continuously during a cycle having a cycle time.

37. (New) A method for transmitting data as Ethernet messages, in compliance with an Ethernet transmission protocol, on an Ethernet network having a baud rate, said method comprising the steps of:

converting the data, during transmission, into a plurality of Ethernet messages;

imposing a break time between transmission of each of the plurality of Ethernet messages; and

transmitting each of said plurality of Ethernet messages sequentially, cyclically, and continuously during a cycle having a cycle time,

wherein the data to be sent are real-time data and a real-time application that generates the real-time data to be sent is synchronized to the transmission operation for the Ethernet messages.

38. (New) A node for an Ethernet network, the node compliant with an Ethernet transmission protocol and comprising a control unit including:

means for converting data into a plurality of Ethernet messages; and

means for transmitting said plurality of Ethernet messages sequentially, cyclically and continuously during a cycle having a cycle time and with a prescribed break time between transmissions,

wherein the control unit is adapted to synchronize a real-time application that generates real-time data to be sent to the transmission operation for the Ethernet messages.